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Chapter 1   Introduction

About IHSDM

The **Interactive Highway Safety Design Model (IHSDM)** is a suite of software analysis tools for evaluating safety and operational effects of geometric design decisions on two-lane rural highways.

IHSDM is a decision-support tool. It checks existing or proposed two-lane rural highway designs against relevant design policy values and provides estimates of a design's expected safety and operational performance. IHSDM results support decision making in the highway design process. Intended users include highway project managers, designers, and traffic and safety reviewers in State and local highway agencies and engineering consulting firms.

Purpose

This document is intended to outline uses for the Interactive Highway Safety Design Model (IHSDM). IHSDM consists of 6 modules:

1. Design Consistency Module.
2. Policy Review Module.
3. Crash Prediction Module.
4. Traffic Analysis Module.
5. Intersection Review Module
6. Driver/Vehicle Module (Not available in 2004 release. Will be added when available).

Workflows using best practices have been developed in a user-friendly and readily understandable format for each of these modules. Each workflow will use the same project so the workflows will contain only the information needed to complete each task.

This Technical Guide is to be used during the design process by both CFLHD internal designers and the A/E firms doing business with CFLHD.

The proper use of IHSDM can produce many desirable results, including:

- Ensuring Design Standards are met
- Expected crashes fro highway segments and intersections, allowing the user to identify design elements expected to have higher than average (or higher that a given threshold) crash experiences
- Design Consistency will be evaluated
- Highway Design Policies are met
- Evaluation of intersection designs
- Re-usability of data
- Increased ability to share resources

Data Needs

Each module uses specific data, some data are required; other data are optional. Refer to the Module Engineer's Manuals for details. Below is a table that can be used, as a quick reference to ensure all the needed data is available prior to the use of IHSDM:

Data Needed	Module				
	Policy Review (PRM)	Crash Prediction (CPM)	Design Consistency (DCM)	Traffic Analysis (TAM)	Intersection Review (IRM)
Terrain	X				
Functional Classification	X				
Design Speed	X	X	X		X
85th Percentile Speed					X
AADTV	X	X			X
Design Hourly Volume	X			X	
Peak Hourly Volume				X	X
Horizontal Alignment	X	X	X	X	X
Vertical Alignment	X	X	X	X	X
Cross Slope (Superelevation)	X	X		X	X
Pavement Type	X				X
Surface Type	X				
Shoulder Definition (Width, Slope, Material)	X	X			
Shoulder Rounding	X				
Through Lane	X	X			X
Passing Lane	X	X		X	X
Turn Lane	X	X			X
Two Way Left Turn Lane	X	X			X
Climbing Lane	X	X		X	X
Lane Offset Width	X				X
Curve Widening	X				
Foreslope	X				
Backslope	X				
Ditch Type and Width	X				
Obstruction Offset	X			X	X
Bike Lanes	X				
Driveway Density		X			
Hazard Rating		X			
Accident History		X			X
Bridge Locations	X				
Decision Sight Distance	X				

Outline of Manual

The Technical Guide is broken into two sections. The first section will describe how to get the project started and how to input the design information. It contains the following chapters:

- Getting Started
- General Information Input
- Cross Section Information Input
- Lane Information Input
- Roadside Information Input
- Other Information Input
- Cross Street Information Input

The second section will describe which reports to use for each design phase. The chapters are broken out by type of project. It contains the following chapters:

- Analysis
- 3R Projects
- 4R & Minor Reconstruction Projects
- Major Reconstruction and New Construction Projects

Conventions

The Technical Guide contains special features designed to help the users find information quickly and easily. Below is a description of the conventions used throughout this manual.

Use of Bold and (>) Greater-Than Symbol

Bold letters are used to identify program commands, menus, and file names. The greater-than symbol **(>)** is used to divide a series of commands.

For example:

Open the existing project file using the **File>Project>Open Project** command. If it is not in the expected folder, click the **Cancel** button.

Caution is to be shown when the reader should take particular note of the information being discussed.

Information is used to provide helpful information about a particular item when it is being discussed, or to provide general information about the standards as needed.

Hyperlinking

Throughout the manual there will be references to information found on the CFLHD website, along with the accompanying web link to this information. Links will be in blue, as shown below:

http://www.cflhd.gov/

Terms and Abbreviations

Abbreviation	Description
IHSDM	Interactive Highway Safety Design Model
FLH	Federal Lands Highways
PRM	Policy Review Module
DCM	Design Consistency Module
CPM	Crash Prediction Module
TAM	Traffic Analysis Module
IRM	Intersection Review Module
D/VM	Driver/Vehicle Module (Not in 2003)
AADTV	Average Annual Daily Traffic Volume
CD	Conceptual Design
PD	Preliminary Design
FD	Final Design

Standard File Extensions

Extension	Description
.GPK	GEOPAK coordinate geometry database.
.DGN	MicroStation Drawing
.TXT	ASCII text file
.XLS	Excel Spreadsheet

Support

Support help using this manual, comments, and suggestions for improvements of this Technical Guide should be addressed to:

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